

DATE,TIME,CO2,CO,,CO,NO,NO2,THC,,O2,Dry-to-Wet Correction Factor,Wet CO2,Wet CO,Wet NO,Wet NO2,Wet NOx,Wet kNO,Wet kNO2,Wet kNOx,Wet HC,Wet CH4,Wet NMHC,Wet AVL MSS,Wet O2,Gas Path,Auto-Zero Active,Power Supply Voltage,Sample Pump Pressure,Drain Pump 1 Pressure,Drain Pump 2 Pressure,Relative Humidity,Absolute Humidity,Volume Humidity,Local Ambient Pressure,Local Ambient Temperature,Auxiliary Temperature,CJC Temperature,Heated Filter Temperature,External Line Temperature,Chiller Temperature,THC Oven Temperature,Not Available,Exhaust Mass Flow Rate,Exhaust Volumetric Flow Rate - SCFM,Exhaust Temperature,Upstream Pressure,Splined Differential Pressure,Data Available,Exhaust Mass Flow Rate,Density Corrected Mass Flow Rate,Upstream Pressure,Exhaust Temperature,Data Available,Horizontal Status LEDs,Vertical Status LEDs,Pressure 1,Pressure 2,Pressure 4,Pressure 5,Pressure 6,Pressure 7,Box Temperature,Manifold Temperature #1,Manifold Temperature #2,Mass Flow (Linear Adjusted),Reynolds Adjusted K,Splined Differential Pressure,Vehicle Responding,MIL Status and DTC\_P01,Engine Load\_P04,Engine Speed\_P0C,Vehicle Speed\_P0D,Mass Air Flow\_P10,Exhaust Temp\_P78-bls1,Exhaust Temp\_P78-bls3,Ambient Air Temp\_P46,NOX\_Bls1,Actual Engine Pct Torq\_P62,Engine Reference Torq\_P63,Air Intake Temp\_P68-bls1,Fuel Rail Temp\_P6D,Boost Control\_P70,DPF Regen Status\_P8B\_2,CAC\_T\_Bls2,Com EGR Position\_P69,Manifold Absol Press\_P4F,Com ERG,NOX\_Bls2,Engine Coolant Temp\_P05,Quality,Time,Latitude,Longitude,Altitude,Ground Speed,Number of satellites in view,Number of satellites in use,Satellites used PRN,Horizontal DoP,Vertical DoP,Position DoP,Air/Fuel Ratio at stoichiometry,Air/Fuel Ratio of Sample,Lambda,Humidity of Exhaust,Instantaneous Fuel Specific CO2,Instantaneous Fuel Specific CO,Instantaneous Fuel Specific NO,Instantaneous Fuel Specific NO2,Instantaneous Fuel Specific NOx,Corrected Instantaneous Fuel Specific NO,Corrected Instantaneous Fuel Specific NO2,Corrected Instantaneous Fuel Specific NOx,Instantaneous Fuel Specific HC,Instantaneous Fuel Specific CH4,Instantaneous Fuel Specific NMHC,Instantaneous Fuel Specific AVL MSS,Instantaneous Fuel Specific O2,Cumulative Work (actual),Cumulative Brake Specific CO2,Cumulative Brake Specific CO,Cumulative Brake Specific NO,Cumulative Brake Specific NO2,Cumulative Brake Specific NOx,Corrected Cumulative Brake Specific NO,Corrected Cumulative Brake Specific NO2,Corrected Cumulative Brake Specific NOx,Cumulative Brake Specific HC,Cumulative Brake Specific CH4,Cumulative Brake Specific NMHC,Cumulative Brake Specific AVL MSS,Fuel Specific Gravity,Fuel Rate,Derived Engine Torque,Derived Engine Power,In/Out NTE Zone,Instantaneous Mass CO2,Instantaneous Mass CO,Instantaneous Mass NO,Instantaneous Mass NO2,Instantaneous Mass NOx,Corrected Instantaneous Mass NO,Corrected Instantaneous Mass NO2,Corrected Instantaneous Mass NOx,Instantaneous Mass HC,Instantaneous Mass CH4,Instantaneous Mass NMHC,Instantaneous Mass AVL MSS,Instantaneous Mass O2,Not Available,Exhaust Mass Flow Rate,Density Corrected Mass Flow Rate,Data Available,Exhaust Temperature,Upstream Pressure,Horizontal Status LEDs,Vertical Status LEDs,Pressure 1,Pressure 2,Pressure 4,Pressure 5,Pressure 6,Pressure 7,Box Temperature,Manifold Temperature #1,Manifold Temperature #2,Mass Flow (Linear Adjusted),Reynolds Adjusted K,Splined Differential Pressure

sDATE,sTIME,iAMBII\_CO2,iAMBII\_CO,iSIGCO\_CO,iAMBII\_COPPM,iNDUV\_NO,iNDUV\_NO2,iFID\_THC,iFI D2\_CH4,iAMBII\_O2,Kw,iCO2zw,iCOzw,iNO2zw,iNOzw,iNOxzw,ikNO2zw,ikNOxzw,iHCzw,iCH4z w,iNMHCzw,iAVLMSSzw,iO2zw,sSTATUS\_PATH,sAUTOZERO\_ACTIVE,iSCB\_PSV,iSCB\_SPP,iSCB\_DP1P,iSC B\_DP2P,iSCB\_RH,iHum\_Abs,iHum\_Vol,iSCB\_LAP,iSCB\_LAT,iSCB\_ET,iSCB\_CJCT,iSCB\_FT,iSCB\_ELT,i SCB\_CT,iFID\_OT,iFID2\_OT,iCMASS\_FLOW,EV\_std,iFLOW\_EX\_TEMP,iFLOW\_UP\_PRESS,iFLOW\_SPLINED\_P PRESS,sFLOW\_AVAILABLE,iFLOW\_MASS\_FLOW,iFLOW\_DC\_MASS\_FLOW,iFLOW\_UP\_PRESS,iFLOW\_EX\_TEMP,sF LOW\_AVAILABLE,sFLOW\_HSTATUS,sFLOW\_VSTATUS,iFLOW\_PRESS1,iFLOW\_PRESS2,iFLOW\_PRESS4,iFLOW PRESS5,iFLOW\_PRESS6,iFLOW\_PRESS7,iFLOW\_BOXTEMP,iFLOW\_MANTEMP1,iFLOW\_MANTEMP2,iFLOW\_MASS \_FLOW\_LA,iFLOW\_RAK,iFLOW\_SPLINED\_PRESS,sVI\_VEH\_RESP,sMIL,iENG\_LOAD,iENG\_SPEED,iVEH\_SPEE D,iMAF,iEGT\_11,iEGT\_DPF,iAAT,iNOX\_Bls1,iTQ\_ACT,iTQ\_REF,iAIT\_11,iFRT\_A,iBP\_A\_ACT,sDPF\_RE GEN,iCAC\_T\_Bls2,iCOM\_EGR,iB\_PRESS,iCOM\_ERG,iNOX\_Bls2,iCOOL\_TEMP,sGPS\_QUAL,sGPS\_TIME,iGP S\_LAT,iGPS\_LON,iGPS\_ALT,iGPS\_GROUND\_SPEED,sGPS\_NUMSATINVIEW,sGPS\_NUMSATINUSE,sGPS\_PRNSA TUSED,iGPS\_HDoP,iGPS\_VDoP,iGPS\_PDoP,AF\_Stoich,AF\_Calc,Lambda,H2O\_exh,iCALCRT\_CO2fs,iCAL CRT\_Cofs,iCALCRT\_Nofs,iCALCRT\_NO2fs,iCALCRT\_NOxfs,iCALCRT\_kNofs,iCALCRT\_kNO2fs,iCALCRT \_kNOxfs,iCALCRT\_HCfs,iCALCRT\_CH4fs,iCALCRT\_NMHCfs,iCALCRT\_AVLMSSfs,iCALCRT\_O2fs,iBhpc,iC ALCSUM\_CO2cb,iCALCSUM\_Cocb,iCALCSUM\_Nocb,iCALCSUM\_NO2cb,iCALCSUM\_NOxcb,iCALCSUM\_kNocb,i CALCSUM\_kNO2cb,iCALCSUM\_kNOxcb,iCALCSUM\_HCcb,iCALCSUM\_CH4cb,iCALCSUM\_NMHCcb,iCALCSUM\_AV LMSScb,SG\_fuel,iWfgps,iPPTorq,iBhp,sPPNTE\_ZONE,iCALCRT\_CO2m,iCALCRT\_COM,iCALCRT\_NOM,iCA LCRT\_NO2m,iCALCRT\_NOxm,iCALCRT\_kNOM,iCALCRT\_kNO2m,iCALCRT\_kNOxm,iCALCRT\_HCM,iCALCRT\_CH4 m,iCALCRT\_NMHCm,iCALCRT\_AVLMSSm,iCALCRT\_O2m,Output\_NTE,iFLOW\_MASS\_FLOW,iFLOW\_DC\_MASS\_FL OW,sFLOW\_AVAILABLE,iFLOW\_EX\_TEMP,iFLOW\_UP\_PRESS,sFLOW\_HSTATUS,sFLOW\_VSTATUS,iFLOW\_PRESS 1,iFLOW\_PRESS2,iFLOW\_PRESS4,iFLOW\_PRESS5,iFLOW\_PRESS6,iFLOW\_PRESS7,iFLOW\_BOXTEMP,iFLOW \_MANTEMP1,iFLOW\_MANTEMP2,iFLOW\_MASS\_FLOW\_LA,iFLOW\_RAK,iFLOW\_SPLINED\_PRESS



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38.000000,,20.00,0.000000,2.000000,, "1","16:22:56",42.304381,-  
83.710604,268.7,0.0,"11","05","0x5200a000",2.100000,1.000000,2.300000,,450.00,,0.606,0.  
000,0.000,0.000,0.000,0.000,0.000,0.000,0.000,0.000,0.000,0.000,,0.000,,,,,,,,,,,,,  
,,0.000,0.00000,0.00000,0.00000,0.00000,0.00000,0.00000,0.00000,0.00000,0.00000,0.00000,0.000  
000000000,0.00000,n/a,0.0,0.000000,"1",20.9,-0.000969,"3","3",-0.000063,-  
0.005436,0.000073,0.000006,3.591956,98.911132,25.000000,35.000000,34.900000,0.000800,0.  
599300,0.000000,

"04/14/2017"," 12:28:37.851",-0.050,0.0050,n/a,50.000000,-5.2,-  
1.2,0.0,,20.90,1.0000,0.0000,0.0050,0.0000,0.0000,0.0,0.0000,0.0000,0.0,0.0000,,0.000,0  
.000,20.9000,"SAMPLE","0",12.8,856,841,860,33.0,26.37,0.61,996,16.0,0.000000,25.000000,  
189.0,190.0,6.3,195.0,n/a,0.9,0.444,21.0,-0.001677,0.000000,"1",0.8,0.833959,-  
0.001677,21.0,"1","3","3",0.000058,-0.005660,-  
0.000589,0.000003,3.515331,98.902237,25.000000,35.000000,34.900000,0.803625,0.599300,0.  
000000,"1",,0.8,1,1.240,0.02000,, -39.800000,, -123.000000,,,,0.060000,"0",-  
38.000000,,20.00,0.000000,2.000000,, "1","16:22:58",42.304382,-  
83.710603,268.7,0.0,"11","05","0x5200a000",2.100000,1.000000,2.300000,,450.00,,0.606,0.  
000,0.000,0.000,0.000,0.000,0.000,0.000,0.000,0.000,0.000,0.000,,0.000,,,,,,,,,,,,,  
,,0.000,0.00001,0.00000,0.00000,0.00000,0.00000,0.00000,0.00000,0.00000,0.00000,0.00000,0.000  
000000000,0.05830,n/a,0.8,0.833959,"1",21.0,-0.001677,"3","3",0.000058,-0.005660,-  
0.000589,0.000003,3.515331,98.902237,25.000000,35.000000,34.900000,0.803625,0.599300,0.  
000000,

"04/14/2017"," 12:28:38.851",-0.050,0.0050,n/a,50.000000,-5.2,-  
1.2,0.0,,20.90,1.0000,0.0000,0.0050,0.0000,0.0000,0.0,0.0000,0.0000,0.0,0.0000,,0.000,0  
.000,20.9000,"SAMPLE","0",12.8,858,841,860,33.0,26.37,0.61,996,16.0,0.000000,25.000000,  
189.0,190.0,6.2,195.0,n/a,0.8,0.410,21.1,0.002662,0.000000,"1",0.8,0.846296,0.002662,21  
.1,"1","3","3",0.000025,-0.003232,-  
0.000231,0.000001,3.647214,98.915823,25.000000,35.000000,34.900000,0.805551,0.599300,0.  
000000,"1",,,1,1.240,0.02000,, -39.800000,, -123.000000,,,,0.060000,"0",-  
38.000000,,20.00,0.000000,2.000000,, "1","16:22:58",42.304382,-  
83.710603,268.7,0.0,"11","05","0x5200a000",2.100000,1.000000,2.300000,,450.00,,0.606,0.  
000,0.000,0.000,0.000,0.000,0.000,0.000,0.000,0.000,0.000,0.000,,0.000,,,,,,,,,,,,,  
,,0.000,0.00001,0.00000,0.00000,0.00000,0.00000,0.00000,0.00000,0.00000,0.00000,0.00000,0.000  
000000000,0.05378,n/a,0.8,0.846296,"1",21.1,0.002662,"3","3",0.000025,-0.003232,-  
0.000231,0.000001,3.647214,98.915823,25.000000,35.000000,34.900000,0.805551,0.599300,0.  
000000,

"04/14/2017"," 12:28:39.851",-0.050,0.0050,n/a,50.000000,-5.2,-  
1.2,0.0,,20.90,1.0000,0.0000,0.0050,0.0000,0.0000,0.0,0.0000,0.0000,0.0,0.0000,,0.000,0  
.000,20.9000,"SAMPLE","0",12.9,855,840,860,33.0,26.37,0.61,996,16.0,0.000000,25.000000,  
189.9,190.0,6.3,195.0,n/a,1.3,0.639,21.1,0.005507,0.000000,"1",1.2,1.300000,0.005507,21  
.1,"1","3","3",0.000142,-0.000843,-  
0.000299,0.000006,3.591956,98.913444,25.000000,35.000000,34.900000,1.226400,0.599300,0.  
000000,"1",,,1,1.240,0.02000,, -39.800000,, -123.000000,,,,0.060000,"0",-  
38.000000,,20.00,0.000000,2.000000,, "1","16:23:00",42.304382,-  
83.710602,268.7,0.0,"11","05","0x5200a000",2.100000,1.000000,2.300000,,450.00,,0.606,0.  
000,0.000,0.000,0.000,0.000,0.000,0.000,0.000,0.000,0.000,0.000,,0.000,,,,,,,,,,,,,  
,,0.000,0.00002,0.00000,0.00000,0.00000,0.00000,0.00000,0.00000,0.00000,0.00000,0.00000,0.000  
000000000,0.08387,n/a,1.2,1.300000,"1",21.1,0.005507,"3","3",0.000142,-0.000843,-  
0.000299,0.000006,3.591956,98.913444,25.000000,35.000000,34.900000,1.226400,0.599300,0.  
000000,

Summary Information:

Post Processor DLL Version,8.099

Status:,SENSOR Tech-CT Phase II License Tag is valid

,MD5 digest is valid

,

,

,

,Using EFM calcs for iEFM\_FLOW

,Torque from ecm but iENG\_TORQUE not available

,Could not determine Regen RF - NTEs with regen activity will be excluded for CT

Test Date,04/14/2017

System Information:

Name	, SEMTECH-DS GAS ANALYZER
Model	, SEMTECH-DS
Serial	, B06-SDS01
Version	, 2.018 184

---

Name	, AUTOMOTIVE MICROBENCH II
Model	, AMBII
Serial	, 26366
Version	, 6.907
CO Span(%)	, 0.020
CO2 Span(%)	, 6.10
C6H14 Span(ppm)	, 1992.0

---

Name	, LR NDUV NO/NO2 ANALYZER
Model	, LR-NDUV-NO/NO2
Serial	, 1270
Version	, 1.302
NO Span(ppm)	, 297.3
NO2 Span(ppm)	, 506.9
NO range	, 3000, 0.000000,5047.433594,-18740.705078,489875.687500,- 2641261.500000,5687743.000000
NO2 range	, 500, 0.000010,6923.259277,0.000000,0.000000,0.000000,0.000000

---

Name	, GPS
Model	, 16x-HVS
Version	, ver.

---

Name	, THC FID
Model	, SEMTECH_DS_Dual
Serial	, 44

Range (ppmC) 1 , 100.0 Bottle (ppmC) = 91.9  
Range (ppmC) 2 , 1000 Bottle (ppmC) = 0000000  
Range (ppmC) 3 , 10000 Bottle (ppmC) = 0000000  
Range (ppmC) 4 , 40000 Bottle (ppmC) = 0000000

-----  
Name , EXHAUST FLOW METER  
Model , EFM  
Module Serial , E06-SE07  
Tube Serial , 0  
Version , 2.104  
k , 0.599329  
Pipe diameter , 60.500000  
Pipe expansion factor , 0.013000  
Pipe expansion gradient , 0.800000  
Reference Temperature (deg K) , 293.100006  
Reference Pressure (Pa) , 101300.000000  
Reynolds Number Coefficient 1 , 6.113038e-001  
Reynolds Number Coefficient 2 , 6.617689e-004  
Reynolds Number Coefficient 3 , 1.553400e+000  
Reynolds Number Coefficient 4 , 5.913159e-001  
Reynolds Number Coefficient 5 , -5.193159e-004  
Reynolds Number Coefficient 6 , 1.151606e+005  
Min Q , 2.156811e+001  
-----

Vehicle Description:,2014 VW Jetta  
License Plate,EPA 3106  
Engine Displacement,2.000  
Rated Horsepower,  
Rated RPM,  
Fuel Specific Gravity,0.850  
SEMTECH Serial Number,B06-SDS01  
AMBI RPM Multiplier,2.00  
Torque (ecm or calc),ecm  
Use Frictional Torque,YES  
Mass Calc Method,EXH\_FLOW,Method I  
Methane FID PF-CH4 value,0.000000  
Methane FID PF-C2H6 value,0.000000  
Vehicle Interface Type,Type V - CAN  
Flow Meter Type,EFM

NOx Kh Calculation,1065.670 Diesel  
Curb Idle Load (%),0.000  
Test Start Time, 12:28:23.851  
Test End Time, 12:28:39.851  
Test Duration (s),17.000000  
NonIdleDurationTimeNumber,14  
Average Ambient Temperature (deg C),16.000  
Average Ambient Pressure (mbar),996.000  
Average Relative Humidity (%),33.353  
Average Absolute Humidity (grains/lb dry air),26.649  
Average Kh Factor,0.893

Regen Summary:

Param Name,  
Pending States  
Active States  
Starts,0  
Stops,0  
Complete Regens,0  
Complete Non-Regens,0  
Total Active,0  
Total Non-Active,0  
Total Active and Pending,0  
Calculated RF,0

Overrides:

iSCB\_RH,  
iSCB\_LAT,  
iVEH\_SPEED\_USED,iVEH\_SPEED  
iENG\_SPEED\_USED,iENG\_SPEED  
iFuelPlusMAF\_MAF,ScaledParam(,0.000000,0)

Overall Test Results:

Total Distance Traveled (mi),0.005  
Total Fuel Consumed (gal),0.000  
Overall Fuel Economy (mpg),0.000  
Total Work (bhp-hr),0.000

Overall Emissions:

CO2 (g),0.000  
CO (g),0.000



NOx (g),0.000

kNOx (g) (corrected NOx),0.000

THC (g),0.000

CH4 (g),0.000

NMHC (g),0.000

C6H14 (g),0.000

PN (#),0.000000e+000

Overall Emissions (Drift Corrected):

CO2 (g),0.000

CO (g),0.000

NOx (g),0.000

kNOx (g) (corrected NOx),0.000

THC (g),0.000

CH4 (g),0.000

NMHC (g),0.000

C6H14 (g),0.000

Distance Specific Emissions:

CO2 (g/mi),0.000

CO (g/mi),0.049

NOx (g/mi),0.000

kNOx (g/mi) (corrected NOx),0.000

THC (g/mi),0.001

CH4 (g/mi),0.000

NMHC (g/mi),0.001

C6H14 (g/mi),0.018

PN (#/mi),-1.000000e+000

Distance Specific Emissions (Drift Corrected):

CO2 (g/mi),0.000

CO (g/mi),0.000

NOx (g/mi),0.000

kNOx (g/mi) (corrected NOx),0.000

THC (g/mi),0.000

CH4 (g/mi),0.000

NMHC (g/mi),0.000

C6H14 (g/mi),0.000

Overall Emissions (Brake Specific):

CO2 (g/bhp-hr),0.000

CO (g/bhp-hr),0.000

NOx (g/bhp-hr),0.000  
kNOx (g/bhp-hr) (corrected NOx),0.000  
THC (g/bhp-hr),0.000  
CH4 (g/bhp-hr),0.000  
NMHC (g/bhp-hr),0.000  
C6H14 (g/bhp-hr),0.000  
NOx + NMHC (g/bhp-hr),0.000

Overall Emissions (Brake Specific, Drift Corrected):

CO2 (g/bhp-hr),-1.#IO  
CO (g/bhp-hr),-1.#IO  
NOx (g/bhp-hr),-1.#IO  
kNOx (g/bhp-hr) (corrected NOx),-1.#IO  
THC (g/bhp-hr),-1.#IO  
CH4 (g/bhp-hr),-1.#IO  
NMHC (g/bhp-hr),-1.#IO  
C6H14 (g/bhp-hr),-1.#IO

Fuel Name,#2 Diesel

Fuel Ratios,0.85,1.00,1.80,0.00,0.00,0.00

Detection Limits:

CO Limit (%),0.000  
CO2 Limit (%),0.000  
NO Limit (ppm),0.000  
NO2 Limit (ppm),0.000  
HC Limit (ppmC),0.000  
Methane Limit (ppmC),0.000  
Hexane Limit (ppm),0.000  
AVL MSS Concentraiton Limit (mg/m3),0.000  
AVL MSS Dilution Ratio Limit,0.000

Time Alingment Summary

DATE,TIME,CO2,CO,CO,NO,NO2,THC,,O2,Gas Path,Auto-Zero Active,Power Supply  
Voltage,Sample Pump Pressure,Drain Pump 1 Pressure,Drain Pump 2 Pressure,Local Ambient  
Pressure,Local Ambient Temperature,Auxiliary Temperature,CJC Temperature,Heated Filter  
Temperature,External Line Temperature,Chiller Temperature,THC Oven Temperature,Exhaust  
Mass Flow Rate,Exhaust Temperature,Upstream Pressure,Splined Differential Pressure,Data  
Available,Exhaust Mass Flow Rate,Density Corrected Mass Flow Rate,Upstream  
Pressure,Exhaust Temperature,Data Available,Horizontal Status LEDs,Vertical Status  
LEDs,Pressure 1,Pressure 2,Pressure 4,Pressure 5,Pressure 6,Pressure 7,Box  
Temperature,Manifold Temperature #1,Manifold Temperature #2,Mass Flow (Linear  
Adjusted),Reynolds Adjusted K,Splined Differential Pressure,Vehicle Responding,MIL  
Status and DTC\_P01,Engine Load\_P04,Engine Speed\_P0C,Vehicle Speed\_P0D,Exhaust Temp\_P78-  
bls1,Exhaust Temp\_P78-blsl3,Ambient Air Temp\_P46,NOX\_Bls1,Actual Engine Pct  
Torq\_P62,Engine Reference Torq\_P63,Air Intake Temp\_P68-blsl,Fuel Rail Temp\_P6D,Boost  
Control\_P70,DPF Regen Status\_P8B\_2,CAC\_T\_Bls2,Com EGR Position\_P69,Manifold Absol



0X0000 - 04/14/2017 12:25:23.934 - None Found  
0X0000 - 04/14/2017 12:27:14.898 - None Found  
0X0000 - 04/14/2017 12:28:22.849 - None Found

Warnings:

0X0000 - 04/14/2017 08:20:24.230 - None Found  
0X0000 - 04/14/2017 08:40:27.441 - None Found  
0X0000 - 04/14/2017 08:43:21.348 - None Found  
0X0000 - 04/14/2017 08:45:55.230 - None Found  
0X0000 - 04/14/2017 08:48:16.846 - None Found  
0X0000 - 04/14/2017 08:50:24.794 - None Found  
0X0000 - 04/14/2017 09:06:13.109 - None Found  
WARNING,09:15:58.548,0xE505 - 04/14/2017 09:15:57.907 - FID over-range  
WARNING,09:16:50.761,0xE505 - 04/14/2017 09:16:50.483 - FID over-range  
WARNING,09:20:45.967,0xE505 - 04/14/2017 09:20:45.417 - FID over-range  
WARNING,09:20:58.586,0xE505 - 04/14/2017 09:20:58.452 - FID over-range  
0X0000 - 04/14/2017 09:28:13.845 - None Found  
WARNING,09:31:51.098,0xE505 - 04/14/2017 09:31:50.997 - FID over-range  
WARNING,09:32:12.837,0xE505 - 04/14/2017 09:32:12.445 - FID over-range  
WARNING,09:32:22.160,0xE505 - 04/14/2017 09:32:21.543 - FID over-range  
WARNING,09:36:27.148,0xE505 - 04/14/2017 09:36:26.833 - FID over-range  
WARNING,09:40:48.048,0xE505 - 04/14/2017 09:40:47.943 - FID over-range  
WARNING,09:40:57.586,0xE505 - 04/14/2017 09:40:57.436 - FID over-range  
WARNING,09:45:04.685,0xE505 - 04/14/2017 09:45:04.026 - FID over-range  
WARNING,09:49:21.185,0xE505 - 04/14/2017 09:49:20.897 - FID over-range  
WARNING,09:49:31.239,0xE505 - 04/14/2017 09:49:30.986 - FID over-range  
WARNING,09:53:36.847,0xE505 - 04/14/2017 09:53:36.441 - FID over-range  
WARNING,09:53:52.586,0xE505 - 04/14/2017 09:53:52.436 - FID over-range  
WARNING,09:57:57.599,0xE505 - 04/14/2017 09:57:57.432 - FID over-range  
WARNING,09:58:08.796,0xE505 - 04/14/2017 09:58:08.428 - FID over-range  
WARNING,10:00:56.099,0xE505 - 04/14/2017 10:00:55.455 - FID over-range  
WARNING,10:04:59.638,0xE505 - 04/14/2017 10:04:59.434 - FID over-range  
WARNING,10:05:07.166,0xE505 - 04/14/2017 10:05:06.957 - FID over-range  
WARNING,10:09:45.110,0xE505 - 04/14/2017 10:09:43.523 - FID over-range  
WARNING,10:10:05.172,0xE505 - 04/14/2017 10:10:04.907 - FID over-range  
WARNING,10:14:15.565,0xE505 - 04/14/2017 10:14:15.488 - FID over-range  
WARNING,10:14:22.991,0xE505 - 04/14/2017 10:14:22.497 - FID over-range  
WARNING,10:18:26.158,0xE505 - 04/14/2017 10:18:25.925 - FID over-range  
WARNING,10:18:34.706,0xE505 - 04/14/2017 10:18:34.409 - FID over-range  
WARNING,10:22:36.729,0xE505 - 04/14/2017 10:22:36.433 - FID over-range

WARNING,10:22:47.049,0xE505 - 04/14/2017 10:22:46.597 - FID over-range  
WARNING,10:26:49.170,0xE505 - 04/14/2017 10:26:48.917 - FID over-range  
WARNING,10:29:45.685,0xE505 - 04/14/2017 10:29:45.454 - FID over-range  
WARNING,10:32:45.120,0xE505 - 04/14/2017 10:32:44.924 - FID over-range  
WARNING,10:35:41.059,0xE505 - 04/14/2017 10:35:40.909 - FID over-range  
WARNING,10:40:02.050,0xE505 - 04/14/2017 10:40:01.692 - FID over-range  
WARNING,10:40:11.331,0xE505 - 04/14/2017 10:40:10.913 - FID over-range  
WARNING,10:42:45.713,0xE505 - 04/14/2017 10:42:45.415 - FID over-range  
WARNING,10:42:59.694,0xE505 - 04/14/2017 10:42:59.397 - FID over-range  
WARNING,10:43:07.240,0xE505 - 04/14/2017 10:43:06.944 - FID over-range  
WARNING,10:47:41.815,0xE505 - 04/14/2017 10:47:41.428 - FID over-range  
WARNING,10:48:00.186,0xE505 - 04/14/2017 10:47:59.958 - FID over-range  
0X0000 - 04/14/2017 10:51:04.865 - None Found  
WARNING,11:04:57.198,0xE505 - 04/14/2017 11:04:56.967 - FID over-range  
WARNING,11:05:35.216,0xE505 - 04/14/2017 11:05:34.941 - FID over-range  
WARNING,11:05:49.165,0xE505 - 04/14/2017 11:05:48.930 - FID over-range  
WARNING,11:07:18.056,0xE505 - 04/14/2017 11:07:17.917 - FID over-range  
WARNING,11:07:30.183,0xE505 - 04/14/2017 11:07:30.005 - FID over-range  
WARNING,11:10:59.733,0xE505 - 04/14/2017 11:10:59.062 - FID over-range  
WARNING,11:11:08.192,0xE505 - 04/14/2017 11:11:07.707 - FID over-range  
WARNING,11:14:28.192,0xE505 - 04/14/2017 11:14:27.973 - FID over-range  
WARNING,11:16:13.127,0xE505 - 04/14/2017 11:16:12.949 - FID over-range  
WARNING,11:16:50.743,0xE505 - 04/14/2017 11:16:50.508 - FID over-range  
WARNING,11:23:19.745,0xE505 - 04/14/2017 11:23:19.256 - FID over-range  
WARNING,11:25:49.171,0xE505 - 04/14/2017 11:25:48.907 - FID over-range  
WARNING,11:26:03.558,0xE505 - 04/14/2017 11:26:03.436 - FID over-range  
WARNING,11:29:04.635,0xE505 - 04/14/2017 11:29:04.222 - FID over-range  
WARNING,11:32:59.192,0xE505 - 04/14/2017 11:32:58.908 - FID over-range  
WARNING,11:33:26.823,0xE505 - 04/14/2017 11:33:26.014 - FID over-range  
WARNING,11:34:03.897,0xE505 - 04/14/2017 11:34:02.942 - FID over-range  
WARNING,11:34:16.693,0xE505 - 04/14/2017 11:34:16.429 - FID over-range  
WARNING,11:49:10.686,0xE505 - 04/14/2017 11:49:10.464 - FID over-range  
WARNING,11:49:16.670,0xE505 - 04/14/2017 11:49:16.460 - FID over-range  
0X0000 - 04/14/2017 11:58:31.078 - None Found  
0X0000 - 04/14/2017 12:01:58.225 - None Found  
0X0000 - 04/14/2017 12:04:32.017 - None Found  
0X0000 - 04/14/2017 12:10:27.799 - None Found  
0X0000 - 04/14/2017 12:13:02.926 - None Found  
0X0000 - 04/14/2017 12:15:08.785 - None Found

0X0000 - 04/14/2017 12:18:35.837 - None Found  
0X0000 - 04/14/2017 12:20:44.062 - None Found  
0X0000 - 04/14/2017 12:22:16.617 - None Found  
0X0000 - 04/14/2017 12:25:23.934 - None Found  
0X0000 - 04/14/2017 12:27:14.898 - None Found  
0X0000 - 04/14/2017 12:28:22.849 - None Found

Post Processor Limits:

Engine Speed Limit (rpm/s),1000.000000  
Vehicle Speed Limit (mph/s),21.000000  
Fuel Rate Limit (gal/s),0.050000  
Reference Torque Limit (lb-ft),10000.000000  
Fuel Specific Dropout Limit(% C),0.500000  
Brake Specific Dropout Limit (bhp-h),0.005000  
FID Range Change Ignore,4

Post Processor Limit Events:

Engine Speed Limit Count,13  
Vehicle Speed Limit Count,1  
GPS Speed Limit Count,0  
Fuel Rate Limit Count,0  
Reference Torque Limit Count,0  
Fuel Specific Dropout Limit Count,245  
Brake Specific Dropout Limit Count,3810  
FID Range Change Ignore Count,0

External Input Configuration:

,ID,Description,Units,Polynomial Order,x^0,x^1,x^2,x^3,x^4,x^5,x^6,x^7,x^8,x^9  
EAI1,,,,,0,0.0000000  
EAI2,,,,,0,0.0000000  
EAI3,,,,,0,0.0000000

Audit/Span/Zero Information:

Zero  
InfoVer,1  
Date,4/14/2017  
Time,08:20:23  
Purge Delay,30  
Gas Path,Zero  
  
Gas,Previous,Current,Difference  
CO(ppm),-190.625000,-14.666667,-175.958333

CO2 (%) , -0.090000, 0.000000, -0.090000  
NO (ppm) , -33.012500, 0.273333, -33.285833  
NO2 (ppm) , -8.262500, 0.053333, -8.315833  
THC (ppmC) , 4.900000, 1.313333, 3.586667

Span

InfoVer, 1

Date, 4/14/2017

Time, 08:40:27

Purge Delay, 30

Gas Path, Span

, CO, CO2, O2, HC, NO, NO2, CH4, THC, LoCO

Bottle Values, 1310.000, 13.000000, 20.900, 1992.000, 1771.000, 506.900, 0.000, 246.667, 0.000

Span

InfoVer, 1

Date, 4/14/2017

Time, 08:40:27

Purge Delay, 30

Gas Path, Span

, CO, CO2, O2, HC, NO, NO2, CH4, THC, LoCO

Bottle Values, 1310.000, 13.000000, 20.900, 1992.000, 1771.000, 506.900, 0.000, 246.667, 0.000

Gas, Previous, Current, Difference

CO2 (%) , 13.388125, 12.973333, 0.414792

NO (ppm) , 1749.906250, 1771.440000, -21.533750

THC (ppmC) , 245.772917, 247.340000, -1.567083

Span

InfoVer, 1

Date, 4/14/2017

Time, 08:43:20

Purge Delay, 30

Gas Path, Span

, CO, CO2, O2, HC, NO, NO2, CH4, THC, LoCO

Bottle Values, 1310.000, 13.000000, 20.900, 1992.000, 1771.000, 506.900, 0.000, 246.667, 0.000

Gas, Previous, Current, Difference

CO (ppm) , 1920.625000, 1314.666667, 605.958333

Span

InfoVer, 1

Date, 4/14/2017

Time,08:45:54  
Purge Delay,30  
Gas Path,Span  
,CO,CO2,O2,HC,NO,NO2,CH4,THC,LoCO  
Bottle Values,1310.000,13.000000,20.900,1992.000,1771.000,255.800,0.000,246.667,0.000  
Gas,Previous,Current,Difference  
NO2 (ppm),261.200000,256.606667,4.593333

Audit

Date,4/14/2017  
Time,08:48:16  
Audit Duration,30  
Idle Duration,15  
Audit Path,Span  
Idle Path,Ambient Air  
Gas,Bottle,Tol,%Tol  
CO (ppm),303.000000,50.000000,3.000000  
CO2 (%),5.110000,0.200000,3.000000  
O2 (%),20.900000,0.500000,3.000000  
HC (ppmC3),0.000000,8.000000,3.000000  
NO (ppm),294.700000,15.000000,3.000000  
NO2 (ppm),68.000000,12.000000,3.000000  
CH4 (ppm),0.000000,0.000000,0.000000  
THC (ppmC3),77.820000,6.000000,2.000000

Gas,Bottle,Mean Value,Std Dev,Result  
CO(ppm),303.000000,320.000000,0.000000,Passed  
CO2(%),5.110000,5.027333,0.004577,Passed  
O2(%),20.900000,10.000000,0.000000,Not Selected  
HC(ppmC3),0.000000,500.000000,0.000000,Not Selected  
NO(ppm),294.700000,288.840000,0.172378,Passed  
NO2(ppm),68.000000,100.000000,0.000000,Not Selected  
CH4(ppm),0.000000,0.000000,0.000000,Not Selected  
THC(ppmC),77.820000,75.433333,1.496026,Passed

Audit

Date,4/14/2017  
Time,08:50:24  
Audit Duration,30  
Idle Duration,15  
Audit Path,Span



Idle Path,Ambient Air

Gas,Bottle,Tol,%Tol

CO (ppm),303.000000,50.000000,3.000000

CO2 (%),5.110000,0.200000,3.000000

O2 (%),20.900000,0.500000,3.000000

HC (ppmC3),0.000000,8.000000,3.000000

NO (ppm),294.700000,15.000000,3.000000

NO2 (ppm),68.000000,12.000000,3.000000

CH4 (ppm),0.000000,0.000000,0.000000

THC (ppmC3),77.820000,6.000000,2.000000

Gas,Bottle,Mean Value,Std Dev,Result

CO(ppm),303.000000,0.100000,0.000000,Not Selected

CO2(%),5.110000,1.000000,0.000000,Not Selected

O2(%),20.900000,10.000000,0.000000,Not Selected

HC(ppmC3),0.000000,500.000000,0.000000,Not Selected

NO(ppm),294.700000,500.000000,0.000000,Not Selected

NO2(ppm),68.000000,60.760000,0.250143,Passed

CH4(ppm),0.000000,0.000000,0.000000,Not Selected

THC(ppmC),77.820000,0.000000,0.000000,Not Selected

Zero

InfoVer,1

Date,4/14/2017

Time,11:58:30

Purge Delay,30

Gas Path,Zero

Gas,Previous,Current,Difference

CO(ppm),95.000000,-12.000000,107.000000

CO2(%),0.350000,-0.010000,0.360000

NO(ppm),57.768750,-2.786667,60.555417

NO2(ppm),14.412500,1.133333,13.279167

THC(ppmC),8.187500,2.466667,5.720833

Span

InfoVer,1

Date,4/14/2017

Time,12:01:57

Purge Delay,30

Gas Path,Span

,CO,CO2,O2,HC,NO,NO2,CH4,THC,LoCO

Bottle Values,1310.000,13.000000,20.900,1992.000,1771.000,255.800,0.000,246.667,0.000

Gas,Previous,Current,Difference

CO(ppm),1271.875000,1300.000000,-28.125000

CO2(%),11.874375,13.002667,-1.128292

NO(ppm),1660.087500,1774.313333,-114.225833

THC(ppmC),241.364583,244.608889,-3.244306

Span

InfoVer,1

Date,4/14/2017

Time,12:04:31

Purge Delay,30

Gas Path,Span

,CO,CO2,O2,HC,NO,NO2,CH4,THC,LoCO

Bottle Values,1310.000,13.000000,20.900,1992.000,1771.000,255.800,0.000,246.667,0.000

Gas,Previous,Current,Difference

NO2(ppm),252.925000,255.253333,-2.328333

Audit

Date,4/14/2017

Time,12:10:27

Audit Duration,30

Idle Duration,15

Audit Path,Span

Idle Path,Ambient Air

Gas,Bottle,Tol,%Tol

CO (ppm),303.000000,50.000000,3.000000

CO2 (%),5.110000,0.200000,3.000000

O2 (%),20.900000,0.500000,3.000000

HC (ppmC3),0.000000,8.000000,3.000000

NO (ppm),294.700000,15.000000,3.000000

NO2 (ppm),68.000000,12.000000,3.000000

CH4 (ppm),0.000000,0.000000,0.000000

THC (ppmC3),77.820000,6.000000,2.000000

Gas,Bottle,Mean Value,Std Dev,Result

CO(ppm),303.000000,328.000000,4.140393,Passed

CO2(%),5.110000,4.609333,0.004577,Failed

O2(%),20.900000,10.000000,0.000000,Not Selected

HC(ppmC3),0.000000,500.000000,0.000000,Not Selected

NO (ppm) , 294.700000, 258.740000, 0.219740, Failed  
NO2 (ppm) , 68.000000, 100.000000, 0.000000, Not Selected  
CH4 (ppm) , 0.000000, 0.000000, 0.000000, Not Selected  
THC (ppmC) , 77.820000, 71.544444, 2.037999, Failed

#### Audit

Date, 4/14/2017

Time, 12:13:02

Audit Duration, 30

Idle Duration, 15

Audit Path, Span

Idle Path, Ambient Air

Gas, Bottle, Tol, %Tol

CO (ppm) , 303.000000, 50.000000, 3.000000

CO2 (%) , 5.110000, 0.200000, 3.000000

O2 (%) , 20.900000, 0.500000, 3.000000

HC (ppmC3) , 0.000000, 8.000000, 3.000000

NO (ppm) , 294.700000, 15.000000, 3.000000

NO2 (ppm) , 68.000000, 12.000000, 3.000000

CH4 (ppm) , 0.000000, 0.000000, 0.000000

THC (ppmC3) , 77.820000, 6.000000, 2.000000

Gas, Bottle, Mean Value, Std Dev, Result

CO (ppm) , 303.000000, 332.000000, 4.140393, Passed

CO2 (%) , 5.110000, 4.616000, 0.005071, Failed

O2 (%) , 20.900000, 10.000000, 0.000000, Not Selected

HC (ppmC3) , 0.000000, 500.000000, 0.000000, Not Selected

NO (ppm) , 294.700000, 259.040000, 0.241424, Failed

NO2 (ppm) , 68.000000, 100.000000, 0.000000, Not Selected

CH4 (ppm) , 0.000000, 0.000000, 0.000000, Not Selected

THC (ppmC) , 77.820000, 71.877778, 1.679317, Passed

#### Zero

InfoVer, 1

Date, 4/14/2017

Time, 12:15:08

Purge Delay, 30

Gas Path, Zero

Gas, Previous, Current, Difference

CO (ppm) , 10.000000, -2.666667, 12.666667

CO2 (%) , -0.214375, 0.000000, -0.214375

Zero

InfoVer,1

Date,4/14/2017

Time,12:18:35

Purge Delay,30

Gas Path,Zero

Gas,Previous,Current,Difference

NO (ppm) ,-40.812500,0.133333,-40.945833

NO2 (ppm) ,-3.268750,0.000000,-3.268750

Audit

Date,4/14/2017

Time,12:20:43

Audit Duration,30

Idle Duration,15

Audit Path,Span

Idle Path,Ambient Air

Gas,Bottle,Tol,%Tol

CO (ppm) ,303.000000,50.000000,3.000000

CO2 (%) ,5.110000,0.200000,3.000000

O2 (%) ,20.900000,0.500000,3.000000

HC (ppmC3) ,0.000000,8.000000,3.000000

NO (ppm) ,294.700000,15.000000,3.000000

NO2 (ppm) ,68.000000,12.000000,3.000000

CH4 (ppm) ,0.000000,0.000000,0.000000

THC (ppmC3) ,77.820000,6.000000,3.000000

Gas,Bottle,Mean Value,Std Dev,Result

CO (ppm) ,303.000000,314.000000,5.070926,Passed

CO2 (%) ,5.110000,5.154000,0.009856,Passed

O2 (%) ,20.900000,10.000000,0.000000,Not Selected

HC (ppmC3) ,0.000000,500.000000,0.000000,Not Selected

NO (ppm) ,294.700000,302.840000,0.235433,Passed

NO2 (ppm) ,68.000000,-0.900000,0.000000,Not Selected

CH4 (ppm) ,0.000000,0.000000,0.000000,Not Selected

THC (ppmC) ,77.820000,71.366667,1.677110,Failed

Zero

InfoVer,1

Date,4/14/2017

Time,12:22:16

Purge Delay,30

Gas Path,Zero

Gas,Previous,Current,Difference

THC(ppmC),-13.750000,-4.266667,-9.483333

Audit

Date,4/14/2017

Time,12:25:23

Audit Duration,30

Idle Duration,15

Audit Path,Span

Idle Path,Ambient Air

Gas,Bottle,Tol,%Tol

CO (ppm),303.000000,50.000000,3.000000

CO2 (%),5.110000,0.200000,3.000000

O2 (%),20.900000,0.500000,3.000000

HC (ppmC3),0.000000,8.000000,3.000000

NO (ppm),294.700000,15.000000,3.000000

NO2 (ppm),68.000000,12.000000,3.000000

CH4 (ppm),0.000000,0.000000,0.000000

THC (ppmC3),77.820000,6.000000,3.000000

Gas,Bottle,Mean Value,Std Dev,Result

CO(ppm),303.000000,320.000000,0.000000,Passed

CO2(%),5.110000,5.142000,0.004140,Passed

O2(%),20.900000,10.000000,0.000000,Not Selected

HC(ppmC3),0.000000,500.000000,0.000000,Not Selected

NO(ppm),294.700000,302.726667,0.252039,Passed

NO2(ppm),68.000000,-0.500000,0.000000,Not Selected

CH4(ppm),0.000000,0.000000,0.000000,Not Selected

THC(ppmC),77.820000,75.697778,1.827153,Passed

Audit

Date,4/14/2017

Time,12:27:14

Audit Duration,30

Idle Duration,15

Audit Path,Span

Idle Path,Ambient Air

Gas,Bottle,Tol,%Tol

CO (ppm),303.000000,50.000000,3.000000  
CO2 (%),5.110000,0.200000,3.000000  
O2 (%),20.900000,0.500000,3.000000  
HC (ppmC3),0.000000,8.000000,3.000000  
NO (ppm),294.700000,15.000000,3.000000  
NO2 (ppm),68.000000,12.000000,3.000000  
CH4 (ppm),0.000000,0.000000,0.000000  
THC (ppmC3),77.820000,6.000000,3.000000

Gas,Bottle,Mean Value,Std Dev,Result

CO(ppm),303.000000,20.000000,0.000000,Not Selected  
CO2(%),5.110000,-0.040000,0.000000,Not Selected  
O2(%),20.900000,10.000000,0.000000,Not Selected  
HC(ppmC3),0.000000,500.000000,0.000000,Not Selected  
NO(ppm),294.700000,-5.200000,NaN,Not Selected  
NO2(ppm),68.000000,61.073333,0.045774,Passed  
CH4(ppm),0.000000,0.000000,0.000000,Not Selected  
THC(ppmC),77.820000,1.666667,NaN,Not Selected

Test Information:

SEMTECH\_DATA\_FILE,04/14/2017,07:41:04.920,[RELEASE\_VER=2.018 BUILD=184 BDATE=03/03/2016  
IP=10.10.1.55]

No Information Available

[TIME\_ALIGN\_OPTIMIZE]